Sampling Vs. Population

Population: When all data required for observation / analysis is collected and studied, the data is referred to as the population.

Sample: When limited data is being collected / analyzed, this data is referred to as sample and is used as an indicative of the entire population.

Population Mean	Sample Mean
$\mu = \frac{\sum_{i=1}^{N} x_i}{N}$	$\overline{X} = \frac{\sum_{i=1}^{n} x_i}{n}$
N = number of items in	n = number of items in
the population	the sample

Where, μ = Population Mean

N = Population Count

 $\bar{x} = Sample Mean$

n = Sample Count

Types of Sampling Technique

1. Random Sampling Technique

We randomly select some sample from entire population is nothing but random sampling.

2. Stratified Sampling Technique

Consider an example where your selecting 1000k data point as sample but in that 1000k record 700 are men and 300 are women, so this is biased. 7:3

In stratified sampling we select equal amount on all the category.

3. Systematic Sampling Technique

Suppose, we are selecting 5 samples from entire population. So we will select 10th data point from each sample I nothing but systematic sampling.

Selecting specific position / nth value from each sample is systematic sampling.

4. Cluster Sampling Technique

This can be work based on some domain. Consider, I want to survey in field of AI. The person who is doing this survey should be expert in their domain field.